

# Claims

- [c1] 1. An electronic shift control apparatus for a bicycle having a transmission with a plurality of speed stages, wherein the apparatus comprises:  
a shift unit that provides signals for shifting the transmission;  
a restriction selecting unit operated by a user to select a restricted speed stage; and  
a restricting unit operatively coupled to the shift unit and to the restriction selecting unit, wherein the restricting unit prevents the shift unit from providing signals to shift the transmission to the restricted speed stage.
- [c2] 2. The apparatus according to claim 1 further comprising riding condition sensing means for sensing a riding condition of the bicycle, wherein the shift unit cooperates with the riding condition sensing means to automatically operate the transmission in accordance with the riding condition.
- [c3] 3. The apparatus according to claim 2 wherein the riding condition sensing means senses bicycle velocity.
- [c4] 4. The apparatus according to claim 3 wherein the riding

condition sensing means is structured to sense bicycle velocity from signals output from an alternating current generator mounted to the bicycle.

[c5] 5. The apparatus according to claim 1 further comprising a manually operated shift control device that provides shift command signals to the shift unit, wherein the shift unit operates the transmission in response to the shift command signals.

[c6] 6. The apparatus according to claim 1 further comprising:  
riding condition sensing means for sensing a riding condition of the bicycle, wherein the shift unit cooperates with the riding condition sensing means to automatically operate the transmission in accordance with the riding condition; and  
a manually operated shift control device that provides shift command signals to the shift unit, wherein the shift unit operates the transmission in response to the shift command signals.

[c7] 7. The apparatus according to claim 1 wherein the transmission comprises a plurality of sprockets and an electronically controlled derailleur that engages a chain with selected ones of the plurality of sprockets to produce the plurality of speed stages.

- [c8] 8. The apparatus according to claim 1 wherein the user selects a restricted speed stage by indicating a prohibited speed stage.
- [c9] 9. The apparatus according to claim 1 wherein the user selects a restricted speed stage by indicating an allowed speed stage.
- [c10] 10. The apparatus according to claim 1 wherein the transmission comprises a front transmission and a rear transmission, wherein at least one of the front transmission and the rear transmission has a plurality of individual speed stages, and wherein the restriction selecting unit selects a restricted speed stage represented by at least one of the plurality of individual speed stages.
- [c11] 11. The apparatus according to claim 10 wherein the front transmission has a plurality of front speed stages, and wherein the restriction selecting unit selects a restricted speed stage represented by at least one of the plurality of front speed stages.
- [c12] 12. The apparatus according to claim 11 wherein the front transmission comprises a plurality of front sprockets and an electronically controlled front derailleur that engages a chain with selected ones of the plurality of front sprockets to produce the plurality of front speed

stages.

- [c13] 13. The apparatus according to claim 12 further comprising riding condition sensing means for sensing a riding condition of the bicycle, wherein the shift unit cooperates with the riding condition sensing means to automatically operate the transmission in accordance with the riding condition.
- [c14] 14. The apparatus according to claim 12 further comprising a manually operated shift control device that provides shift command signals to the shift unit, wherein the shift unit operates the transmission in response to the shift command signals.
- [c15] 15. The apparatus according to claim 12 further comprising:  
riding condition sensing means for sensing a riding condition of the bicycle, wherein the shift unit cooperates with the riding condition sensing means to automatically operate the transmission in accordance with the riding condition; and  
a manually operated shift control device that provides shift command signals to the shift unit, wherein the shift unit operates the transmission in response to the shift command signals.

[c16] 16. The apparatus according to claim 1 wherein the transmission comprises a front transmission and a rear transmission, wherein the front transmission has a plurality of front speed stages, wherein the rear transmission has a plurality of rear speed stages, and wherein the restriction selecting unit selects a restricted speed stage of at least one of the front transmission and the rear transmission.

[c17] 17. The apparatus according to claim 16 wherein the at least one of the front transmission and the rear transmission comprises a plurality of sprockets and an electronically controlled derailleur that engages a chain with selected ones of the plurality of sprockets to produce a plurality of individual speed stages, and wherein the restriction selecting unit selects a restricted speed stage represented by at least one of the plurality of individual speed stages.

[c18] 18. The apparatus according to claim 17 wherein the front transmission comprises a plurality of front sprockets and an electronically controlled front derailleur that engages a chain with selected ones of the plurality of front sprockets to produce a plurality of front speed stages, wherein the rear transmission comprises a plurality of rear sprockets and an electronically controlled rear derailleur that engages the chain with selected ones

of the plurality of rear sprockets to produce a plurality of rear speed stages, and wherein the restriction selecting unit selects a restricted speed stage represented by at least one of the plurality of front speed stages and the plurality of rear speed stages.

[c19] 19. The apparatus according to claim 18 wherein the restriction selecting unit selects at least one of the plurality of front speed stages as a restricted speed stage.

[c20] 20. The apparatus according to claim 19 further comprising riding condition sensing means for sensing a riding condition of the bicycle, wherein the shift unit cooperates with the riding condition sensing means to automatically operate the transmission in accordance with the riding condition.

[c21] 21. The apparatus according to claim 19 further comprising a manually operated shift control device that provides shift command signals to the shift unit, wherein the shift unit operates the transmission in response to the shift command signals.

[c22] 22. The apparatus according to claim 19 further comprising:  
riding condition sensing means for sensing a riding condition of the bicycle, wherein the shift unit cooperates

with the riding condition sensing means to automatically operate the transmission in accordance with the riding condition; and

a manually operated shift control device that provides shift command signals to the shift unit, wherein the shift unit operates the transmission in response to the shift command signals.